

ENTERED



PCT10

RAW SEQUENCE LISTING

DATE: 05/29/2002

PATENT APPLICATION: US/10/031,691

TIME: 11:43:48

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

```

4 <110> APPLICANT: Uebele, Victor N.
5       Swanson, Richard J.
6       Liu, Yuan
7       Lagrutta, Armando
9 <120> TITLE OF INVENTION: NOVEL HUMAN CALCIUM SENSITIVE POTASSIUM
10      CHANNEL
12 <130> FILE REFERENCE: 20499P
14 <140> CURRENT APPLICATION NUMBER: 10/031,691
15 <141> CURRENT FILING DATE: 2002-01-22
17 <150> PRIOR APPLICATION NUMBER: PCT/US00/19585
18 <151> PRIOR FILING DATE: 2000-07-18
20 <150> PRIOR APPLICATION NUMBER: 60/144,764
21 <151> PRIOR FILING DATE: 1999-07-20
23 <160> NUMBER OF SEQ ID NOS: 20
25 <170> SOFTWARE: FastSEQ for Windows Version 4.0
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 1184
29 <212> TYPE: DNA
30 <213> ORGANISM: Human
32 <400> SEQUENCE: 1
33 cttaatccta tccaagtatg cagtacgctc ttgggtcgtc tcatgagacc caggggcatg      60
34 ttggaaagaa ctgagagaaa gagcaacaaa ggcgcgagtg gtgtgagagg gcagcacgcg      120
35 ctgtggggcc cttccagaga aatgtactga aaaagtctac gcaatgtctg ggatttgcta      180
36 aacaatacct ggaaagcaga caggtttttt tgccattcct ccaggacatc caccataagg      240
37 aaaggagacc ctggaccaac attctctaag atgtttatat ggaccagtgg ccggacctct      300
38 tcatcttata gacatgatga aaaaagaaat atttaccaga aaatcaggga ccatgacctc      360
39 ctggacaaaa ggaaaacagt cacagcactg aaggcaggag aggaccgagc tattctcctg      420
40 ggactggcta tgatggtgtg ctccatcatg atgtattttc tgctgggaat cacactcctg      480
41 cgctcataca tgcagagcgt gtggaccgaa gagtctcaat gcaccttgct gaatgcgtcc      540
42 atcacggaag catttaactg ctcccttcagc tgtggtccag actgctggaa actttctcag      600
43 tacccttgcc tccaggtgta cgttaacctg acttcttcctg gggaaaagct cctcctctac      660
44 cacacagaag agacaataaa aatcaatcag aagtgtcctt atatacctaa atgtggaaaa      720
45 aattttgaag aatccatgtc cctggtgaat gttgtcatgg aaaacttcag gaagtatcaa      780
46 cacttctcct gctattctga ccagaaagga aaccagaaga gtgtttatcct aaccaaactc      840
47 tacagttcca acgtgctgtt ccattcactc ttctggccaa cctgtatgat ggctgggggt      900
48 gtggcaattg ttgccatggt gaaacttaca cagtacctct ccctactatg tgagaggatc      960
49 caacggatca atagataaat gcaaaaatgg ataaaataat ttttgtaaa gctcaaatac     1020
50 tgttttcttt cattcttcac caaagaacct taagtttgta acgtgcagtc tgttatgagt     1080
51 tccctaatat attcttatat gtagagcaat aatgcaaaag ctgttctata tgcaaacatg     1140
52 atgtctttat tattcaggag aataaataac tgttttgtgt tgaa                        1184
54 <210> SEQ ID NO: 2
55 <211> LENGTH: 235
56 <212> TYPE: PRT

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/031,691

DATE: 05/29/2002

TIME: 11:43:48

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

57 <213> ORGANISM: Homo Sapiens

59 <400> SEQUENCE: 2

60 Met Phe Ile Trp Thr Ser Gly Arg Thr Ser Ser Ser Tyr Arg His Asp
61 1 5 10 15
62 Glu Lys Arg Asn Ile Tyr Gln Lys Ile Arg Asp His Asp Leu Leu Asp
63 20 25 30
64 Lys Arg Lys Thr Val Thr Ala Leu Lys Ala Gly Glu Asp Arg Ala Ile
65 35 40 45
66 Leu Leu Gly Leu Ala Met Met Val Cys Ser Ile Met Met Tyr Phe Leu
67 50 55 60
68 Leu Gly Ile Thr Leu Leu Arg Ser Tyr Met Gln Ser Val Trp Thr Glu
69 65 70 75 80
70 Glu Ser Gln Cys Thr Leu Leu Asn Ala Ser Ile Thr Glu Thr Phe Asn
71 85 90 95
72 Cys Ser Phe Ser Cys Gly Pro Asp Cys Trp Lys Leu Ser Gln Tyr Pro
73 100 105 110
74 Cys Leu Gln Val Tyr Val Asn Leu Thr Ser Ser Gly Glu Lys Leu Leu
75 115 120 125
76 Leu Tyr His Thr Glu Glu Thr Ile Lys Ile Asn Gln Lys Cys Ser Tyr
77 130 135 140
78 Ile Pro Lys Cys Gly Lys Asn Phe Glu Glu Ser Met Ser Leu Val Asn
79 145 150 155 160
80 Val Val Met Glu Asn Phe Arg Lys Tyr Gln His Phe Ser Cys Tyr Ser
81 165 170 175
82 Asp Pro Glu Gly Asn Gln Lys Ser Val Ile Leu Thr Lys Leu Tyr Ser
83 180 185 190
84 Ser Asn Val Leu Phe His Ser Leu Phe Trp Pro Thr Cys Met Met Ala
85 195 200 205
86 Gly Gly Val Ala Ile Val Ala Met Val Lys Leu Thr Gln Tyr Leu Ser
87 210 215 220
88 Leu Leu Cys Glu Arg Ile Gln Arg Ile Asn Arg
89 225 230 235

91 <210> SEQ ID NO: 3

92 <211> LENGTH: 1237

93 <212> TYPE: DNA

94 <213> ORGANISM: Human

96 <400> SEQUENCE: 3

97 gctcccggct gccgagcggt aaacacaggt gatgaggtgg cggcaagcac agtgcaaaga 60
98 gagagaagca gcttcggctg cagcaaacca cgcaggtcct tcttgatcat ctagaactga 120
99 ccgctccgcc ttgccaggag tctgcagaac cacgtggctg gcctgcctga agttctcacc 180
100 tctctaggaa ggcggggggc ttctaattggc tgcagctgcg ctgggggctg ggggctcccg 240
101 ctgggactcc acttcctggt atgtctaagc ttcacctttc ttgcgcccgc aggggcatga 300
102 ctcaagtgaa agggagccat tttctcagac ccctggcctc atgcagccct tcagcatccc 360
103 cgtgcaaadc acacttcagg gcagccggag gcgcccgggg aggacagcct ttctgcctc 420
104 agggagaag agagagacag actacagtga tggagaccca ctgatgtgc acaagaggct 480
105 gccatccagt actggagagg accgagccgt gatgctgggg tttgccatga tgggcttctc 540
106 agtctaattg ttcttcttgc tcggaacaac cattctaaag ctttttatgc tcagcattca 600
107 gagagaagaa tcgacctgca ctgccatoca cacagatatc atggacgact ggctggactg 660
108 tgccttcacc tgtggtgtgc actgccacgg tcaggggaag taccctgtgc ttcaggtgtt 720

RAW SEQUENCE LISTING

DATE: 05/29/2002

PATENT APPLICATION: US/10/031,691

TIME: 11:43:48

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

```

109 tgtgaacctc agccatccag gtcagaaaag tctcctacat tataatgaag aggctgtcca      780
110 gataaatccc aagtgtcttt acacacctaa gtgccaccaa gatagaagtg atttgtctaa      840
111 cagtgtctctg gacataaaaag aattcttcga tcacaaaaat ggaaccccct tttcatgctt      900
112 ctacagtcca gccagccaat ctgaagatgt cattcttata aaaaagtatg accaaatggc      960
113 tatcttccac tgtttatttt ggccttcaact gactctgcta ggtggtgccc tgattgttgg     1020
114 catggtgaga ttaacacaac acctgtcctt actgtgtgaa aaatatagca ctgtagtcag     1080
115 agatgaggta ggtggaaaag taccttatat agaacagcat cagttcaaac tgtgcattat     1140
116 gaggaggagc aaaggaagag cagagaaaatc ttaagacggt ggccaaatta aagtgtctggc     1200
117 cttcagatgt ctgtgatttc tgcaactcga gtatgcg      1237

```

119 <210> SEQ ID NO: 4

120 <211> LENGTH: 277

121 <212> TYPE: PRT

122 <213> ORGANISM: Homo Sapiens

124 <400> SEQUENCE: 4

```

125 Met Gln Pro Phe Ser Ile Pro Val Gln Ile Thr Leu Gln Gly Ser Arg
126 1 5 10 15
127 Arg Arg Gln Gly Arg Thr Ala Phe Pro Ala Ser Gly Lys Lys Arg Glu
128 20 25 30
129 Thr Asp Tyr Ser Asp Gly Asp Pro Leu Asp Val His Lys Arg Leu Pro
130 35 40 45
131 Ser Ser Thr Gly Glu Asp Arg Ala Val Met Leu Gly Phe Ala Met Met
132 50 55 60
133 Gly Phe Ser Val Leu Met Phe Phe Leu Leu Gly Thr Thr Ile Leu Lys
134 65 70 75 80
135 Pro Phe Met Leu Ser Ile Gln Arg Glu Glu Ser Thr Cys Thr Ala Ile
136 85 90 95
137 His Thr Asp Ile Met Asp Asp Trp Leu Asp Cys Ala Phe Thr Cys Gly
138 100 105 110
139 Val His Cys His Gly Gln Gly Lys Tyr Pro Cys Leu Gln Val Phe Val
140 115 120 125
141 Asn Leu Ser His Pro Gly Gln Lys Ala Leu Leu His Tyr Asn Glu Glu
142 130 135 140
143 Ala Val Gln Ile Asn Pro Lys Cys Phe Tyr Thr Pro Lys Cys His Gln
144 145 150 155 160
145 Asp Arg Ser Asp Leu Leu Asn Ser Ala Leu Asp Ile Lys Glu Phe Phe
146 165 170 175
147 Asp His Lys Asn Gly Thr Pro Phe Ser Cys Phe Tyr Ser Pro Ala Ser
148 180 185 190
149 Gln Ser Glu Asp Val Ile Leu Ile Lys Lys Tyr Asp Gln Met Ala Ile
150 195 200 205
151 Phe His Cys Leu Phe Trp Pro Ser Leu Thr Leu Leu Gly Gly Ala Leu
152 210 215 220
153 Ile Val Gly Met Val Arg Leu Thr Gln His Leu Ser Leu Leu Cys Glu
154 225 230 235 240
155 Lys Tyr Ser Thr Val Val Arg Asp Glu Val Gly Gly Lys Val Pro Tyr
156 245 250 255
157 Ile Glu Gln His Gln Phe Lys Leu Cys Ile Met Arg Arg Ser Lys Gly
158 260 265 270
159 Arg Ala Glu Lys Ser

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/031,691

DATE: 05/29/2002

TIME: 11:43:48

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

```

160          275
162 <210> SEQ ID NO: 5
163 <211> LENGTH: 1632
164 <212> TYPE: DNA
165 <213> ORGANISM: Human
167 <400> SEQUENCE: 5
168 aagagaaaaga acaagaaaaa gaaaaagaag aggaaaaaat cccaggtacc catagaaacc      60
169 cttaaagatg tttaaaaaga gttaacttat cagaacacag atttaagtga aattaaggaa      120
170 gaagagcagg taaagtctac tgacagaaaag tcagcagtgagg aagcccaaaa cgaggtgact      180
171 gaaaatccaa aacagaaaaat tgcagcagaa agcagtgaaa atgctgattg tccagagaat      240
172 cctaaaatga agttggatgg aaaacttgac caagaaggca atgatgtaaa aacagcagct      300
173 gaggaggtac tagctggtag agacacatta gattttgagg atgtcacagt tcaatcatca      360
174 ggccccgagg ctggtggtga agaattagat gaaggtggtg caaaagataa tgctaaaata      420
175 gctggtgcc a cttaaagcaa tcctgaagaa ccagagagtg aagatgcaga tcaactgcacc      480
176 gtacccaaaa atgaaagtcc ctacacaggac attagtgatg cctgtgaagc agaaagtaca      540
177 gagaggtgcg ggaatgcaga acatccaagt cagaccatca ggaaagcttt agacagcaat      600
178 agcctaaaaa accatgactt gttggcacca ggaggagagc cgggggactt caatccagaa      660
179 agcagagaag ataccagagg agggaacgag aagggcaaaa gcaaagaaga ccgtaccatg      720
180 tcctaagctg aggcaggcgg caggcgtggt gcacaggaag tctgagtgtg aggggctctt      780
181 ttctctccac tgccaatgac agcctttcct gcctcagggg agaagagaga gacagactac      840
182 agtgatggag acccactaga tgtgcacaag aggctgccat ccagtactgg agaggaccga      900
183 gccgtgatgc tggggtttgc catgatgggc ttctcagtc taatgttctt cttgctcgga      960
184 acaaccattc taaagccttt tatgtctcagc attcagagag aagaatcgac ctgcactgcc      1020
185 atccacacag atatcatgga cgactggctg gactgtgcct tcacctgtgg tgtgcactgc      1080
186 cacggtcagg ggaagtaacc gtgtcttcag gtgtttgtga acctcagcca tccaggtcag      1140
187 aaagctctcc tacattataa tgaagaggct gtccagataa atcccaagtg cttttacaca      1200
188 cctaagtgcc accaagatag aatatgattt ctcaacagtg ctctggacat aaaagaattc      1260
189 ttcgatcaca aaaatggaac ccccttttca tgcttctaca gtccagccag ccaatctgaa      1320
190 gatgtcattc ttataaaaaa gtatgaccaa atggctatct tccactgttt attttggcct      1380
191 tcaactgact tgctaggtgg tgccctgatt gttggcatgg tgagattaac acaacacctg      1440
192 tccttactgt gtgaaaaata tagcactgta gtcagagatg aggtaggtgg aaaagtacct      1500
193 tatatagaac agcatcagtt caaactgtgc attatgagga ggagcaaagg aagagcagag      1560
194 aaatcttaag acggtggcca aattaaagtg ctggccttca gatgtctgtg atttctgcaa      1620
195 ctcgagtatg cg                                     1632
197 <210> SEQ ID NO: 6
198 <211> LENGTH: 257
199 <212> TYPE: PRT
200 <213> ORGANISM: Homo Sapiens
202 <400> SEQUENCE: 6
203 Met Thr Ala Phe Pro Ala Ser Gly Lys Lys Arg Glu Thr Asp Tyr Ser
204 1          5          10          15
205 Asp Gly Asp Pro Leu Asp Val His Lys Arg Leu Pro Ser Ser Thr Gly
206          20          25          30
207 Glu Asp Arg Ala Val Met Leu Gly Phe Ala Met Met Gly Phe Ser Val
208          35          40          45
209 Leu Met Phe Phe Leu Leu Gly Thr Thr Ile Leu Lys Pro Phe Met Leu
210          50          55          60
211 Ser Ile Gln Arg Glu Glu Ser Thr Cys Thr Ala Ile His Thr Asp Ile
212 65          70          75          80

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/031,691

DATE: 05/29/2002

TIME: 11:43:48

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

213 Met Asp Asp Trp Leu Asp Cys Ala Phe Thr Cys Gly Val His Cys His
 214 85 90 95
 215 Gly Gln Gly Lys Tyr Pro Cys Leu Gln Val Phe Val Asn Leu Ser His
 216 100 105 110
 217 Pro Gly Gln Lys Ala Leu Leu His Tyr Asn Glu Glu Ala Val Gln Ile
 218 115 120 125
 219 Asn Pro Lys Cys Phe Tyr Thr Pro Lys Cys His Gln Asp Arg Asn Asp
 220 130 135 140
 221 Leu Leu Asn Ser Ala Leu Asp Ile Lys Glu Phe Phe Asp His Lys Asn
 222 145 150 155 160
 223 Gly Thr Pro Phe Ser Cys Phe Tyr Ser Pro Ala Ser Gln Ser Glu Asp
 224 165 170 175
 225 Val Ile Leu Ile Lys Lys Tyr Asp Gln Met Ala Ile Phe His Cys Leu
 226 180 185 190
 227 Phe Trp Pro Ser Leu Thr Leu Leu Gly Gly Ala Leu Ile Val Gly Met
 228 195 200 205
 229 Val Arg Leu Thr Gln His Leu Ser Leu Leu Cys Glu Lys Tyr Ser Thr
 230 210 215 220
 231 Val Val Arg Asp Glu Val Gly Gly Lys Val Pro Tyr Ile Glu Gln His
 232 225 230 235 240
 233 Gln Phe Lys Leu Cys Ile Met Arg Arg Ser Lys Gly Arg Ala Glu Lys
 234 245 250 255
 235 Ser

238 <210> SEQ ID NO: 7

239 <211> LENGTH: 1759

240 <212> TYPE: DNA

241 <213> ORGANISM: Human

243 <400> SEQUENCE: 7

244 ccagctact cgggaggctg aggcaggaga atcgcttgaa cctgggaggc ggaggaggtt 60
 245 gcagtgaact gagatcgta cagcctggg caacagtgcg aggcctcgtc tcaaaaaaaa 120
 246 accaaaaaac acaaaaacaa aaaacgacag agaaggccaa acaaaaacaca tctgtgggct 180
 247 ggatgccgcc atgccaccg gtttgcgacc tttgtgttg acttttctgt tcaccagaca 240
 248 ccctgccctg cgagaatgta tctcatcctt tgctggagca ggtttgcagg cacagtggag 300
 249 agaggagaga agaaatgaag ggacacttat gcagaacctat gaggggccag agaggaggag 360
 250 aaggagggtg agaggagcaa agaagccatg acaacttcat aattctgagt ggactgggca 420
 251 gtggccagaa attctgggtg tggatatgct gcctttccaa cagggtgaata tgaaagaata 480
 252 agtcaaaccg tgttcaggac gctgttaatt ccaaagtga actttttgag tcattctttt 540
 253 catgtggaat tcaaaggaga atgtaaacaa attttcaggga gggacgtgca atatccctga 600
 254 aagataacag agttcgtaac acttattttac atacaacatt ctctagttat tgattaaaca 660
 255 gatctctaca gacttgcatt aggcaacatt tcttaggctt gtttgctaca atatctttaa 720
 256 aaatacttga ttacacatca ctttagctta ttttagatgga cttttcacca agctctgaac 780
 257 tgggatttca ttttgttgca ttcattcctgc tcacgagaca caggtaggca gcaaatagaga 840
 258 ttatccctcc agtccccatg gattggaaat gttccccctt ctttatgagc tcaactgcagt 900
 259 atctccttct ccttttcccc aaaggacagc ctttcctgcc tcagggaaga agagagagac 960
 260 agactacagt gatggagacc cactagatgt gcacaagagg ctgccatcca gtactggaga 1020
 261 ggaccgagcc gtgatgctgg ggtttgccat gatgggcttc tcagtcctaa tgttcttctt 1080
 262 gctcggaaca accattctaa agccttttat gctcagcatt cagagagaag aatcgacctg 1140
 263 cactgccatc cacacagata tcatggacga ctggctggac tgtgccttca cctgtggtgt 1200
 264 gcactaccac ggtcagggga agtaccctgt tcttcagggtg tttgtgaacc tcagccatcc 1260

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/031,691

DATE: 05/29/2002
TIME: 11:43:49

Input Set : A:\20499P - SeqList.txt
Output Set: N:\CRF3\05292002\J031691.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:20; N Pos. 27687,40467,40468,40469,40470,40471,40472,40473,40474,40475
Seq#:20; N Pos. 40476,40477,40478,40479,40480,40481,40482,40483,40484,40485
Seq#:20; N Pos. 40486,40487,40488,40489,40490,40491,40492,40493,40494,40495
Seq#:20; N Pos. 40496,40497

VERIFICATION SUMMARY

DATE: 05/29/2002

PATENT APPLICATION: US/10/031,691

TIME: 11:43:49

Input Set : A:\20499P - SeqList.txt

Output Set: N:\CRF3\05292002\J031691.raw

L:960 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:27660

L:1173 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:40440